REMARKS

Claims 1-18 are pending in the application. Claims 1, 2, 5, 11, 14, 16, and 17 have been amended to correct a typographic error and/or to clarify the subject matter recited therein. The amendments do not add new matter. In view of the amendments and the following remarks, favorable reconsideration of this case is respectfully requested.

Claims 1-4, 6, 7, 11-14, and 17 are rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent Application Publication No. 2002/0115252 A1 to Haukka et al. (hereinafter Haukka). Applicants respectfully traverse.

Amended claim 1 recites a method for forming a semiconductor device including the step of depositing a monoatomic ***metal*** film on a base by using a metal source including a compound containing the metal and no oxygen. The method of claim 1 also includes the step of ***depositing a metal oxide film including oxide of the metal on the monoatomic metal film*** by using a CVD technique.

As described in the specification of the present invention as regards the first embodiment (Specification; page 8, line 24 et. seq.), tantalum is first deposited in a monoatomic film (Specification; page 10, line 25 to page 11, line 12), and then deposited as an oxide in a CVD process. (Specification; page 11, lines 13-23). Similarly, the second and third embodiments discussed in the specification describe the use of tantalum as both the metal in the monoatomic film and the metal in the CVD deposited oxide, though other metals may also be used. (Specification; page 16, lines 3-14). However, according to the specification, the monoatomic layer (also described as the seed layer) is formed of ***the same metal that is later deposited*** as an oxide in the CVD process. This distinction is important since one of the

purposes of the present invention is to provide a metal oxide film. (Specification; page 1, lines 4-5).

The Examiner asserts that these features are disclosed in Haukka. However, there is no disclosure in Haukka of depositing a metal oxide of the metal in the monoatomic film by a CVD technique. Haukka apparently provides an atomic layer deposition of a compound including aluminum (Huakka; paragraphs 61 and 69), and an oxide layer including zirconium. Haukka specifically discloses "an interface layer between two or more materials." (Haukka; abstract). Huakka does not disclose, or even suggest, depositing a monoatomic layer of a metal and a subsequent ***deposition of an oxide of the same metal on the monoatomic layer of the metal*** in a CVD process, as recited in claim 1.

The Examiner responds to this argument by asserting that Haukka discloses depositing an oxide layer of aluminum over a nanolaminate of Al_2O_3. (Office Action; page 2, lines 5-10; citing Haukka; paragraph 106). However, the cited section of Haukka states:

> Still another experiment was made where the thin film consisted of ***a metal oxide nanolaminate. Several layers of ZrO_2 and amorphous Al_2O_3 were grown***. The processes of Tables I and II above were employed, forming a structure similar to that of FIG. 4. The structure was as follows ....

(Hauka; paragraph 106). The metal oxide laminate is undetermined in the embodiment of Haukka, and furthermore, the layers of ZrO_2 and amorphous Al_2O_3 which are grown are not shown as being grown in any particular order or on top of any particular metal monoatomic layer. Additionally, there is no mention of depositing a metal oxide with a CVD process. Additionally, the section of Haukka following the quoted section, which appears to show a layering order, does not disclose any layers of metal oxide being deposited on a metal of the same layer. Therefore, there can be no disclosure or suggestion of depositing a metal oxide film

including oxide of the metal ***on*** the monoatomic film. Therefore, for at least this reason claim 1 is allowable.

The Office Action also restates the previous citation to paragraphs 61 and 69 of Haukka as disclosing the feature of depositing monoatomic film including a metal with no oxygen. Without admitting the veracity of this assertion, it is respectfully submitted that these sections do not appear in conjunction with the section cited as allegedly disclosing the oxide layer deposition step. In particular, paragraph 61 apparently only discusses oxides covering a substrate surface. Therefore, it does not appear that this section discloses a monoatomic layer as recited in claim 1. Regarding paragraph 69, this only discloses a pulse including Al. Finally, paragraph 106, which is discussed above, appears to relate to "another experiment". (Haukka; paragraph 106, line 1). These various disclosures appear to relate to distinct embodiments of the Haukka disclosure, and therefore do not identically disclose the features of claim 1.

The Examiner's response to the argument presented above asserts that Haukka discloses depositing Aluminum oxide on a monoatomic film including Aluminum. (Advisory Action; page 2). In the Advisory Action, the Examiner asserts that the claims do not recite a monoatomic metal film, but rather a monoatomic film including a metal. However, the all of the citations in the Office Action as purportedly disclosing the monoatomic layer are directed to compounds that include a metal, but not metals. (Haukka; paragraph 61 and 69).

Therefore, in the interest of expediting prosecution, Applicants amend the independent claims from reciting "a monoatomic film including a metal" to "a monoatomic metal film". Haukka refers to compounds including metals, for example Al_2O_3. It is respectfully submitted that Haukka does not disclose or suggest a monoatomic metal film, but rather apparently discusses a film composed of a compound including a metal. (Haukka; paragraph 61 and 69).

Since all of the features of the independent claims are not disclosed or suggested by Haukka, the reference does not anticipate the independent claims.

Claims 2-4, 6, 7, and 11-13 depend from claim 1 and are therefore allowable for at least the same reasons as claim 1 is allowable.

Claim 14 recites a method for forming a semiconductor device that includes depositing a monoatomic film including a metal on a base in an oxygen-free environment and ***depositing a metal oxide film including an oxide of the metal on the monoatomic film using a CVD technique***. Since claim 14 includes the deposition of a metal in a monoatomic layer and a deposition of the same metal in an oxide in a CVD process, claim 14 is allowable over the cited references for at least the same reasons as claim 1 is allowable.

Claim 17 recites a semiconductor device formed by a method. The method includes depositing a monoatomic film including a metal on a base in an oxygen-free environment and ***depositing a metal oxide film including an oxide of the metal on the monoatomic film using a CVD technique***. Since claim 17 includes the deposition of a metal in a monoatomic layer and a deposition of the same metal in an oxide in a CVD process, claim 17 is allowable over the cited references for at least the same reasons as claim 1 is allowable.

It is therefore respectfully requested the rejection be withdrawn and claims 1-4, 6, 7, 11-14, and 17 be allowed.

Claims 5, 15, 16, and 18 are rejected under 35 U.S.C. §103(a) as being unpatentable over Haukka in view of U.S. Patent Application Publication No. 2005/0009335 A1 to Dean et al. (hereinafter Dean). Applicants respectfully traverse.

Claim 5 depends from claim 1 and is therefore allowable for at least the same reasons as claim 1 is allowable.

Claims 15 and 16 depend from claim 14 and are therefore allowable for at least the same reasons as claim 14 is allowable.

Claim 18 depends from claim 17 and is therefore allowable for at least the same reasons as claim 14 is allowable.

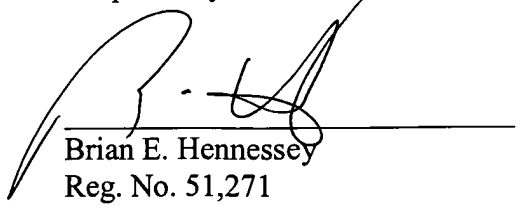
Claims 8-10 are rejected under 35 U.S.C. §103(a) as being unpatentable over Haukka in view of U.S. Patent Application Publication No. 2003/0207593 A1 to Derderian et al. (hereinafter Derderian). Applicants respectfully traverse.

The addition of Derderian fails to cure the deficiency discussed above in regard to claim 1, and therefore, claims 8-10, which depend from claim 1, are therefore allowable for at least the same reasons as claim 1 is allowable.

In view of the remarks set forth above, Applicants respectfully submit that the present application is in condition for allowance. However, if for any reason the Examiner should consider this application not to be in condition for allowance, the Examiner is respectfully requested to telephone the undersigned attorney at the number listed below prior to issuing a further Action.

Any fee due with this paper may be charged to Deposit Account No. 50-1290.

Respectfully submitted,



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